



National Productivity Council

Training Programme
on
Why is Power Quality in Electrical Systems Such
a Big Issue.....?

PROGRAMME CODE: T2425CHN02

09-10 September 2024
(AIP - Chennai)



1. ABOUT NPC

National Productivity Council (NPC) is an autonomous organization under the Department of Promotion of Industry and Internal Trade, Ministry of Commerce & Industry, Government of India. The present expertise available in NPC has a resource base of professionals from fields such as Economics, Industrial Engineering, Human Resource Management, Energy, Environment, IT, Project Monitoring and Evaluation, Research Studies and Baseline Surveys. In addition, services of external professionals and subject matter specialists are also sought on need basis, depending upon the nature and scope of work. NPC extends services from its headquarter at New Delhi and 12 regional offices across the country manned by more than 100 full time professionals. NPC has professionals from diverse fields to provide Consultancy, Capacity Building and Project Monitoring Unit (PMU) services to various organisations including Central Government Ministries and State Governments.

2. PROGRAMME THEME

Are you a victim of exorbitant electricity bills due to high levels of harmonics as well as even higher penalties...?

Do you have any clue on how to measure and control this menace...?

A two day training program is been organized by National Productivity Council (NPC) is designed to bring awareness & solutions to Power Quality issues and also to maintain harmonics TDD below the norms prescribed by utility/DISCOM.

The effect of Power quality problems in industrial, commercial, and residential systems can range from a minor inconvenience to costly downtime.

This two-day training program explains the engineering recommendations associated with power quality, and demonstrates their application through hands on experience and case studies.

The course will take you through the theory behind various types of disturbance in power networks (low voltage) focusing on different Power Quality parameters, issues and mitigation techniques.

Finally the training program will discuss power quality measurements and how the results can be interpreted, as well as the kind of power quality mitigation and conditioning techniques that you can apply.

3. LEARNING OBJECTIVES

NPC has designed the training program to help participants to :

- Recognize symptoms of power quality problems including sags, swells, under or overvoltage, harmonics, transients, electrical noise etc.,
- Understand what needs to be done by utility companies and end users with respect to IEEE519-2014.
- Prevent the premature failure of key assets
- Develop vital skills in power quality measurement as per applicable standards.
- Learn new techniques for mitigation and conditioning

4. BROAD PROGRAMME COVERAGE

The following topics shall be covered during the training

Day one

- ❖ Introduction to electrical systems
- ❖ Why is power quality in electrical systems such a big issue?
 - Voltage changes
 - Transients
 - Voltage sag and swell measurement
 - Transient voltage measurement
 - Harmonics
 - Noise & Flicker
 - Monitoring power quality
 - Documenting power quality problems
- ❖ Where do harmonics come from?
- ❖ How harmful are harmonics
- ❖ Case study presentation

Day two

- ❖ Overview of Danfoss electrical system
- ❖ Harmonic Solutions
 - Line Reactors
 - 12/18 Pulse Solutions
 - Passive Filter (AHF)
 - Active filters (AAf)
 - Active Front End Rectifier (AFE)
- ❖ Harmonic measurement and standards
 - Measurement standards
 - VT's and CT's
 - Instruments
- ❖ Power quality surveys in Danfoss campus (With & Without Harmonic Filters- Hands on Experience)
 - What to measure
 - Where to measure
 - Analyzing the data
- ❖ Conclusion

5. METHODOLOGY

Methodology of the training program would be participative in nature. The sessions would be based on conceptual deliberations, case studies, success stories and group exercises/discussions.

6. PARTICIPANTS' PROFILE

This course contains essential knowledge for you if you are a user, owner or operator of an electrical distribution network, or a user or specifier of power equipment in the commercial and industrial sectors. The course will also be of benefit to you if you are a manufacturer or supplier of non-linear equipment or a consultant or advisor on electrical distribution networks.

7. FACULTY

The faculty for the training programme will comprise of senior NPC Experts & other renowned and experienced Trainers from the respective field.

8. PROGRAMME FEE & VENUE

Programme Code	T2425CHN02	
Program Venue	AIP Chennai	
Programme Fee	Residential Participants ₹ 15000 /- + 18% GST	Non-Residential Participants ₹ 12000 /- + 18% GST

9. PAYMENT DETAILS

Programme fee inclusive of GST to be paid in advance and proof of payment to be attached along with application form.

- **ECS Payment Details:** Indian Overseas Bank, 70, Golf Link, New Delhi Branch;
- A/c No. 026501000009207, IFSC Code. IOBA0000265
- DD/Cheque should be drawn in the name of NATIONAL PRODUCTIVITY COUNCIL payable at NEW DELHI
- NPC'S PAN No: AAATN0402F, NPC'S GSTIN: 07AAATN0402F1Z8

As per GOI notification No. 9/2017-Integrated Tax (Rate) dated 28.06.17, Sr. No. 75, Heading 9992 (at page no. 19 of the notification) No GST is applicable where Services provided to the Central Government, State Government, UT Administration under any training programme for which total expenditure is borne by the Central Government, State Government, UT Administration.



HOW TO APPLY

- Please apply in prescribed application format enclosed with this brochure. Nominations may be sent to the following address:
- Last date for Receiving of nominations: (two weeks before the scheduled date of programme)

Nikhil Panchbhai
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National Productivity Council,
5-6 Institutional Area, Lodi Road, New
Delhi – 110003
Mobile: 08368398480
Phone:-011-24607321
Email: nikhil.p@npcindia.gov.in

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NATIONAL PRODUCTIVITY COUNCIL
5-6 Institutional Area, Lodhi Road, New Delhi – 110003

APPLICATION FORM FOR NOMINATIONS

Title of Programme: **Why is Power Quality in Electrical Systems Such a Big Issue.....?**

Programme Code: **T2425CHN02**

Programme Duration: **09-10 September 2024**

Venue/ Location: **AIP Chennai**

Select Participation on Residential Basis

OR Non-Residential Basis

Details of Nominated Participants:

S. No	Name of Delegate	Designation	Mobile No.	Email ID	Participant Organisation Address (kindly provide full address of correspondence)
1					
2					
3					
4					
5					

Details of Nominating Authority:

S. No	Name of Nominating Authority	Designation	Mobile No.	Email ID	Nominating Authority Organization Address (kindly provide full address of correspondence)
1					

Select, if Organization is GST Exempted

OR

Select, if Organization is Not GST Exempted

SELF DECLARATION ON GST EXEMPTION (OPTIONAL)

As per GST notification No. 9/2017-Integrated Tax (Rate) dated 28.06.17, Sr. No. 75, Heading 9992 (at page no. 19 of the notification) No GST is applicable where Services provided to the Central Government, State Government, UT Administration under any training programme for which total expenditure is borne by the Central Government, State Government, UT Administration.

- I/We hereby declare that we meet all the conditions stipulated in the aforementioned GST notifications and qualify for exemption from GST payment for the training program mentioned above.
- I/We acknowledge that any breaches or non-compliance with the specified conditions may result in the collection of GST, interest, and penalty amounts by NPC on behalf of the GST department at a later stage whenever the GST department raises the same to NPC.
- I/We also declare that it is the responsibility of the participant organization to verify their eligibility to avail the benefit, and NPC is not responsible for checking the eligibility. *I certify that the above information is correct

Signature: _____ Date: _____ and Place: _____

For Organisation who are Not Exempted and having GST registration GST No. (Mandatory) _____
(Kindly provide the GST number of organisation on which GST Invoice to be raised)
Organisation PAN No. (Optional) _____
Organisation TAN No. (Mandatory on TDS deduction) _____

DECLARATION

*I certify that the above information is correct

Signature: _____ Date: _____ and Place: _____

10. GENERAL INSTRUCTIONS

- ❖ Due to limited number of seats, it is recommended to send the nominations as per attached format at the earliest, for ensuring the availability. Acceptance of the nominations is subject to the seat availability and receipt of programme fee latest by the last date for nominations.
- ❖ The Residential programme fee covers the professional fees towards training, board & lodge of the Participant(s). The fee once deposited is non-refundable, however, substitutions are allowed.
- ❖ Each participant should carry their ID cards and necessary letters / orders issued by their department for attending the training program.
- ❖ The Non-Residential programme fee covers the professional fee towards training, lunch and refreshments during the training program. The fee once deposited is non-refundable, however, substitutions are allowed.
- ❖ NPC shall not bear any charges towards participants' to & fro travel from their residence / place of stay and the training program venue. All participants shall make their own arrangement to reach the venue on time as per the programme schedule.
- ❖ Participants are requested to assure their health and safety during the training period and NPC will not be liable for medical expenses incurred by the participants during the program.
- ❖ NPC will not provide boarding and lodging before and after the dates of programme. Participants planning to stay longer than the scheduled duration should arrange the same at their own cost.
- ❖ Settlement of additional bills: The hotel will be instructed to open separate folio for each participant. Participants may directly settle their additional dues regarding family member, laundry, telephone, mini bar, room service, overstay etc. with the hotel before checkout.
- ❖ The participants shall be awarded Certificate of Participation on successful completion of programme.
- ❖ Any other terms and conditions apply as may be notified by NPC at any point of time.
- ❖ Referring to GST guidelines, you are requested to confirm the applicability of GST payment for your department.
- ❖ Participants are required to follow the necessary COVID protocols during training.